THE CONSTRUCTION AND FUNCTION OF SPREAD DEVICES IN SPRINKLE MACHINES

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SUMMARY

In modern agriculture, the sprinkle machines have a bigger and bigger role, considering the new conditions imposed by European Community.

The paper refers to the spread devices, considering that these devices are one of the most important parts of sprinkle machines. Considering the way in which the liquid scattering is realized, there are different types of spread devices: mechanical, pneumatic and combined.

The paper makes a critic analysis of all these types of spread devices.

In the case of spread devices with mechanical spread of the liquid, spread is realised through the exit with pressure of liquid caught in a hellycoidal motion, through the callibred hole: the nozzle. The most used devices with mechanical spread are those with deflector.

The spread device with tablet has instead of deflector a tile with 2 channels bent in reverse senses, so at passing through these channels, the liquid gets a rotation movement.

The device with direct spread has the turbo-chamber with constant volume, the liquid rotation being made due to the modifying of the passing section or to the tangential directing of it to the callibred hole.

For obtaining the spread jet under a fan form there are used spread devices without deflector or another device which can get the liquid the rotation movement. The spread in this case is less fine than that of spread devices with rotation movement of the liquid. They are used for applying the herbicides where is not necessary a very fine spread.

The spread obtained with spread devices realises the dispersion of the most part of the liquid in drops with diameters between 200 and 500 µm. The drops diameter is as less as the nozzle hole is less, the pressure is higher, the superficial tension and viscosity of liquid is less.

The decrease of diameter of liquid drops has as effect a better repartition of active substances on plant surface, it is avoided the liquid draining and the reducing of liquid quantity used on surface unit. Thus, results that, through the increase of fine spread, the same quantity of active substance can be spread on surface unit with a much less volume of water.

REFERENCES